

Model Dart (cont'd)	511	511-7E	514, 514-7
Weight (dry), lb. (includes all controls, exhaust unit, ignition system, torque-meter, thermocouples, oil tank, fuel pump and water injection unit)	1182	--	1163
Ignition system	Igniters Lodge LR.104, KLG KR.104 or Champion FHE-19-6H, AC YA-20 (Rolls-Royce P/N CR.104) with igniter boxes, Rotax N.B. 25/3, N.B. 34 or B.T.N. 063TS	--	--
NOTES	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,7,8,9
"- -" indicates "same as preceding model"			

Certification basis

CAR 10. Engine Type Certificate No. 283 issued June 13, 1955.

Date of Application for Type Certificate April 20, 1955.

Each individually imported engine and replacement parts must be accompanied by the pertinent Rolls-Royce Engine Inspection and Test Certificate and be clearly identified as imported.

The Dart 506 and Dart 510 engine models, cancelled, December 9, 2002.

The aviation authority for Germany, Luftfahrt-Bundesamt, originally type certificated this engine. The FAA validated this product under U.S. Type Certificate Number E-283. Effective September 28, 2003, the European Aviation Safety Agency (EASA) began oversight of this product on behalf of Germany.

Import Requirements:

To be considered eligible for installation on U.S. registered aircraft, each new engine to be exported to the United States with Luftfahrt-Bundesamt (Germany) or EASA airworthiness approval shall have a Joint Aviation Authorities (JAA) or EASA Form 1, Authorized Release Certificate. The JAA or EASA Form 1 should state that the engine conforms to the type design approved under the U.S. Type Certificate E-283, is in a condition for safe operation and has undergone a final operational check.

Additional guidance is contained in FAA Advisory Circular 21.23, Airworthiness Certification of Civil Aircraft, Engines, Propellers and Related Products, Imported into the United States.

NOTES**NOTE 1.** Maximum permissible temperatures:

Turbine gas temperatures: Actual operating exhaust gas temperatures will vary to meet environmental operating conditions in accordance with the approved manufacturer's instructions.

	511	511-7E	514, 514-7
Takeoff (wet)	1103°F (595°C)	--	1112°F (600°C)
Takeoff (dry)	1076° (580°C)	1076°F to 1157°F (580°C to 625°C)	1103°F (595°C)
Maximum continuous	1076°F (580°C)	1076°F to 1157°F (580°C to 625°C)	1094°F to 1202°F (590° to 650°C)
Maximum transient start	1184°F (640°C)	--	
Oil inlet temperature.	+5°F to 230°F (-15°C to 110°C)	--	

NOTE 2. Fuel and oil pressure limits:

Fuel supply pressure at engine fuel inlet, varying with flow per RR curve HK 23634, issue 3.

Oil pressure, 15 to 30 p.s.i.g., minimum to complete flight 12 p.s.i.g.

(p.s.i.g = pounds per sq. in. gage)

NOTE 3. The engine ratings are based on standard conditions with no air bleed or accessory power drive, 60°F, 29.92 in.Hg., and Pw/Po = .01 at sea level with limiting exhaust gas temperatures.

On dry air, T.O. power is increased by less than 1/2% and MC power by 1-1/3%. Jet thrust is converted to equivalent shaft hp by dividing the thrust value by a factor of 2.5.

For 511, 511-7E, 514, 514-7 engines, the power output values are the minimum acceptance values and with the temperature limits are based on the use of Rolls-Royce RK. 13196 exhaust system.

NOTE 4. Water/alcohol injection is optional and is utilized through automatically varied flow to provide a constant level of power output for takeoffs. The w/a fluid should be a 63/37 mixture of water and methyl alcohol (Rolls-Royce AEP-1-W/M Issue 5) or equivalent. The water used is distilled, demineralized, or contains a maximum of 10.PPM solids, and the methyl alcohol is British D.Eng. R.D. 2481 or equivalent. The w/a flow for the 511 and 511-7E engines begins at temperatures over 60°F and increases to 582 gph (U.S. maximum). The maximum w/a flow for the 514 and 514-7 is 655 gph (U.S.).

NOTE 5. Accessory provisions on engine: (Oil cooler and air inlet are engine-mounted)

Drive	<u>Rotation (facing drive)</u> (C - clockwise) (CC - counter-clockwise)	<u>Speed Ratio</u> to Turbine	<u>Continuous</u> <u>Torque*</u> (in. -lb.)	<u>Static</u> <u>Torque**</u> (in. -lb.)	<u>Maximum</u> <u>Overhang</u> (in. -lb.)
Power takeoff					
120 hp. for 511, 511-7E 514 and 514-7	CC	345	1510	4960	185.0
Propeller governor					
511 and 511-7E CU86E	CC	.195	138	1380	93.5
514 and 514-7 CU 98	CC	.195	138	1380	93.5
Starter, Rotax C5102 or C5104	CC	2.000	272	1000	86.7
Fuel pump, Lucas CB222/3AU					
511, 511-7E, 514, and 514-7	CC	.195	85	780	34.0
*Continuous torque values are based on takeoff power at sea level.					
**Maximum torque of weak link without permanent set, or the clutch setting for the starter.					

NOTE 6. The mixing of approved fuels is permitted without restriction. No adjustment of the engine controls is necessary and no loss of performance occurs. The following fuels are approved for these engines (Fuels shall conform to the specifications as listed or to subsequent revisions thereof):

British D.Eng. R.D.2482 or 2494
 Canadian 3-GP-23^f type 1
 American A.S.T.M. D.1655- 68 type A or A-1
 I.A.T.A. Kerosene Type Fuel
 British D.Eng.R.D.2486
 Canadian 3-GP-22^f type II
 American MIL-T-5624G Grade J.P.4
 A.S.T.M. D.1655-68 type B
 I.A.T.A. Wide-cut Fuel

NOTE 7. These engines meet FAA requirements for icing protection, adequate turbine disc integrity and rotor blade containment and do not require external armoring.

NOTE 8. Maximum permissible air bleed extraction for aircraft purposes is 1.88% for engine models 511, 511-7E, 514 and 514-7.

NOTE 9. Maximum overspeed limit is 17,000 r.p.m. for 20 sec. If this limit is exceeded the engine will be overhauled.

Note 10. Each of the documents listed below must state that it is approved by the European Aviation Safety Agency (EASA) or, for approvals made before September 28, 2003 by Luftfahrt-Bundesamt (Germany) or CAA (UK). Any such documents including those approved under a delegated authority, are accepted by the FAA and are considered FAA approved.

- Service bulletins,
- Structural repair manuals,
- Vendor manuals,
- Aircraft flight manuals, and
- Overhaul and maintenance manuals.
- Technical Variances

These approvals pertain to the type design only.

END